

CM what is claimed is:

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a1 1. In a rotating disk data storage device of the type including a disk whereon data is written by a transducer head adjacent the disk in angularly extending sectors on concentric data tracks to be subsequently read therefrom by the transducer; a controller responsive to sector location pulses for locating said sectors; and means for moving the transducer head between tracks on the disk; an apparatus for providing the sector location pulses, comprising:

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master clock means synchronized with the rotation rate of the disk for providing master clock signals indicative of the angular location of the transducer head with respect to a selected index location on the disk following passage of the index location by the transducer head;
a first counter clocked by the clock means;
latch means for storing at least one selected time corresponding to a selected angular distance along a selected track on the disk;
an accumulator connected to the latch means for adding said selected time to the contents of the accumulator each time the accumulator is

25 a1 clocked by an accumulator clock signal;
a first comparator connected to the first counter
and the accumulator for providing an
electrical indication that the contents of the
counter is at least as large as the contents
of the accumulator;
30 accumulator clock means connected to the first
comparator and responsive to said electrical
indication for repetitively providing the
accumulator clock signal to the accumulator so
long as the accumulator contents does not
exceed the first counter contents;
35 master reset means for resetting the first counter
and the accumulator at such times that the
index location on the disk passes the
transducer head;
partial reset means for entering the selected times
40 into the latch means and resetting the
accumulator each time the transducer is moved
to a new track on the disk; and
sector location pulse generation means for
45 providing the sector location pulses to the
controller concurrently with selected
accumulator clock pulses.

2. The apparatus of claim 1 wherein the sector

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location pulse generation means comprises:

5 P1 a sector location pulse gate connected to the first comparator to receive said electrical indication of the relative contents of the first counter and the accumulator; and

P1 means for generating a sector location pulse each time the sector location pulse gate is enabled;

10 P5 wherein the apparatus further comprises:

P1 a second counter clocked by the accumulator clock signals;

P1 a number of sectors latch for storing the numbers of sectors on the tracks of the disk; and

15 P1 a second comparator connected to the second counter, the number of sectors latch and ^{the} sector location pulse gate for disabling the sector location pulse gate following attainment of the value stored in the number of sectors latch by the second counter.

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Sub 92 3. The apparatus of claim 2 wherein the latch means comprises:

a sector time latch for storing sector times corresponding to angular lengths of sectors on the tracks;

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10 a2 a delay time latch for storing delay times
corresponding to selected angular skew
distances of the sectors along tracks of the
disk; and

15 an accumulation time selector connected between the
accumulator and the sector and delay time
latches for presenting sector times to the
accumulator in an enabled state of the
selector and for presenting the delay times to
the accumulator in a disabled state of the
selector; and

20 wherein the apparatus is further characterized as
comprising delayed index controller means for disabling
the accumulation time selector and the sector location
pulse gate for the first accumulator clock
signal following reset of the accumulator.

a 4. The apparatus of claim 3 wherein the sector
location pulse generation means comprises means for
selecting the duration of the ^{sector location} ~~controller~~ pulses.

a 5. The apparatus of claim 2 wherein the sector
location pulse generation means comprises means for
selecting the duration of the ^{sector location} ~~controller~~ pulses.

6. The apparatus of claim 1 wherein the sector

a location pulse generation means comprises means for selecting the duration of the ^{sector location} ~~controller~~ pulses.

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G3 7. The apparatus of claim 1 wherein the latch means comprises:

5 a sector time latch for storing sector times corresponding to angular lengths of sectors on the tracks;

a delay time latch for storing delay times corresponding to selected angular skew distances of the sectors along tracks of the disk; and

10 an accumulation time selector connected between the accumulator and the sector and delay time latches for presenting sector times to the accumulator in an enabled state of the selector and for presenting the delay times to the accumulator in a disabled state of the selector;

15 wherein the sector location pulse generation means comprises:

20 a sector location pulse gate connected to the first comparator to receive said electrical indication of the relative contents of the first counter and the accumulator; and

Claim 7

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means for generating a sector location pulse each time the sector location pulse gate is enabled; and

wherein the apparatus is further characterized as comprising delayed index controller means for disabling the accumulation time selector and the sector location pulse gate for the first accumulator clock signal following reset of the accumulator.

8. The apparatus of claim 7 wherein the sector location pulse generation means comprises means for selecting the duration of the ^{sector location} ~~controller~~ pulses.

9. A method for generating controller pulses for locating data storage sectors on data tracks of a rotating disk data storage device having a transducer head adjacent the surface of the disk for writing to and reading from the sectors, comprising:

accumulating next sector times corresponding to the locations of the sectors on the disk following passage of a selected index location on the disk by the transducer head;

maintaining a continuous count of a time from index following passage of the index location by the transducer head;

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generating a controller pulse each time the disk
advances to a new sector on a track; and
setting the accumulated time to zero each time the
transducer head is moved to a new track on the
disk; and
repetitively accumulating next sector times
following movement of the transducer head to a
new track on the disk until the accumulation
of next sector times exceeds the time from
index.

a 10. The method of claim ⁹ further comprising the
steps of:

5 p1 maintaining a count of the number of sectors which
have reached the transducer head following
passage of the index location by the
transducer head at such times that the
transducer head is positioned adjacent a
selected track on the disk;

a 10 p1 discontinuing generation of ^{sector location} controller pulses at
such times that the number of sectors that
have passed the transducer head reaches a
preselected number of sectors for the selected
track; and

p1 following movement of the transducer to a new track

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on the disk, updating the number of sectors count to an effective number of passed sectors between the index ^{location} ~~mark~~ and ^{the location of} the transducer head on the new track.

a 11. The method of claim 10 further comprising the step of accumulating a delayed index time to be added to the ^{accumulation of} ~~next~~ sector times each time the index ^{location} ~~mark~~ on the disk passes the transducer head.

a 12. The method of claim 11 wherein the step of generating a ^{sector location} ~~controller~~ pulse is further characterized as generating a ^{sector location} ~~controller~~ pulse having one of a plurality of durations selected for each track on the disk.

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13. The method of claim 9 further comprising the step of accumulating a delayed index time to be added to the next sector times each time the index mark on the disk passes the transducer head.

Claim 13
a 14. The method of claim 13 wherein the step of generating a ^{sector location} ~~controller~~ pulse is further characterized as generating a ^{sector location} ~~controller~~ pulse having one of a plurality of durations selected for each track on the disk.

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15. The method of claim 9 wherein the step of
generating a ^{sector location} ~~controller~~ pulse is further characterized
as generating a ^{sector location} ~~controller~~ pulse having one of a
plurality of durations selected for each track on the
5 disk.

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